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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/578,747	05/10/2006	Tomokazu Muraguchi	10517/331	4485

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EXAMINER
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KLASTERKA, AUDREY ELLEN

ART UNIT	PAPER NUMBER
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3748

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/578,747	<b>Applicant(s)</b> MURAGUCHI, TOMOKAZU	
	<b>Examiner</b> AUDREY KLASTERKA	<b>Art Unit</b> 3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-4 and 10 is/are allowed.
- 6) ☒ Claim(s) 5-9 and 11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>5/10/2006 and 11/11/2009</u> . | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 5-6, 9, and 11** are rejected under 35 U.S.C. 103(a) as being unpatentable over Bone et al. (US Patent 5,319,928; hereinafter Bone) in view of Hirooka et al. (US Patent Publication 2004/0011027 A1; hereinafter Hirooka '027).

3. As to claims 5, 6, and 9, Bone discloses **a secondary air supply apparatus [12-15] for an internal combustion engine [1], which supplies secondary air to a portion upstream of an exhaust gas control device [5]** (col. 2 lines 45-50, col. 2 line 64 - col. 3 line 9, and Figure 1), **the apparatus [12-15] comprising: secondary air delivered under pressure from an air pump [12] to a passage [15] connecting to an exhaust gas passage [4]** (col. 2 line 64 – col. 3 line 9 and Figure 1); **an information obtaining device [6] that obtains information** (from engine speed sensor) **relating to noise heard wherein the information relating to the noise includes at least one of a vehicle speed** (col. 2 lines 60-63; wherein it is inherent that the speed of the engine creates noise), **a rotational speed of the internal combustion engine, and an opening amount of a throttle valve provided in the internal combustion engine; and a pump operating device [6] that operates the air pump [12] when a magnitude**

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**of the noise [n] is larger than a predetermined value [nev]** (col. 3 lines 37-50 and Figures 2-3). Bone does not specify that the engine [1] is installed in a vehicle; however, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to install the engine and exhaust system on a vehicle with an expectation of predictable results as engines are widely used for propelling vehicles. The modified Bone does not disclose a pressure detector for determining a failure in the secondary air supply system. Hirooka '027, however, discloses a secondary air feeding apparatus [1] and method of detecting abnormality in the apparatus (Title) comprising: **a pressure detector [15] that performs detection of a pressure of secondary air delivered under pressure from an air pump [12] to a passage [11] connecting to an exhaust gas passage [21] and a failure determining device [10] that determines whether failure has occurred in the secondary air supply apparatus [1] based on a result of the detection that is performed by the pressure detector [15] while the air pump [12] is controlled so as to be operated [S106], wherein the failure determining device [10] determines whether failure has occurred in at least one of the pressure detector and the air pump [12]** (paragraphs 0029-0031, 0033, 0038 and Figures 1 and 3A-B). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to include a failure determining device that determines whether a failure has occurred in the modified Bone's secondary air supply system based on a pressure detection result because Hirooka '027 teaches that this allows for the determination of an abnormality occurring in a component such as an air

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pump or valve in the secondary air feeding apparatus at an early stage to avoid the decreased efficiency of purifying exhaust gases (paragraph 0006).

4. As to claim 11, the apparatus of claim 5 would inherently perform the method of claim 11.

5. **Claims 5-9 and 11** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirooka et al. (Japanese Patent 2003/314263 A using machine translation; hereinafter Hirooka '263) in view of Bone et al. (US Patent 5,319,928; hereinafter Bone).

6. As to claims 5 and 6, Hirooka '263 discloses **a secondary air supply apparatus [1] for an internal combustion engine [2] installed in a vehicle** (paragraph 0014, 0026, and Figure 1), **which supplies secondary air to a portion upstream of an exhaust gas control device [41a, 41b]** (paragraphs 0016-0017 and Figure 1), **the apparatus [1] comprising: a pressure detector [14] that performs detection of a pressure of secondary air delivered under pressure from an air pump [13] to a passage [10] connecting to an exhaust gas passage [40a, 40b]** (paragraphs 0017, 0020, 0023, 0027, and Figure 1); **and a failure determining device [5] that determines whether failure has occurred in the secondary air supply apparatus [1] based on a result of the detection that is performed by the pressure detector [14] while the air pump [15] is controlled so as to be operated** (paragraphs 0020, 0023, and 0027). Hirooka '263 does not disclose operating the pump when a magnitude of noise is larger than a predetermined value. Bone, however, teaches a method and arrangement for controlling the operation of a secondary air pump [12] (Title), wherein **an information obtaining device [6] that obtains information** (from engine speed

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sensor) **relating to noise heard wherein the information relating to the noise includes at least one of a vehicle speed** (col. 2 lines 60-63; wherein it is inherent that the speed of the engine creates noise), **a rotational speed of the internal combustion engine, and an opening amount of a throttle valve provided in the internal combustion engine; and a pump operating device [6] that operates the air pump [12] when a magnitude of the noise [n] is larger than a predetermined value [nev]** (col. 3 lines 37-50 and Figures 2-3). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to operate Hirooka '263's secondary air pump [13] when a magnitude of engine speed [n] is larger than a predetermined value [nev] because Bone teaches that this ensures that the noise associated with the operation of the secondary air pump only starts when the engine is running and that no additional load on the current supply takes place during the start of the engine for a secondary air pump which is driven electrically (col. 3 lines 32-37).

7. As to claim 7, the modified Hirooka '263 discloses **the secondary air supply apparatus according to claim 5, wherein the internal combustion engine [2] is provided with plural cylinders [20], and wherein the secondary air supply apparatus [1] includes i) a first air passage [10] through which the air delivered under pressure from the air pump [13] flows, ii) a first opening/closing valve [15] which opens/closes the first air passage [10], iii) a second air passage [11a] which is connected to the first air passage [10] at a portion downstream of the first opening/closing valve [15], and which is connected to an exhaust passage [40a] leading to a predetermined cylinder (left cylinder) among the plural cylinders [20],**

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**iv) a second opening/closing valve [16a] which opens/closes the second air passage [11a], v) a third air passage [11b] which is connected to the first air passage [10] at a portion downstream of the first opening/closing valve [15], and which is connected to an exhaust passage [40b] leading to a cylinder (right cylinder) different from the predetermined cylinder (left cylinder) to which the exhaust passage connected to the second air passage [11a] leads, and vi) a third opening/closing valve [16b] which opens/closes the third air passage [11b]** (paragraphs 0014-0017 and Figure 1); **and the failure determining device [5] determines whether failure has occurred in the secondary air supply apparatus [1] based on a result of the detection that is performed by the pressure detector [14] while the first opening/closing valve [15], the second opening/closing valve [16a], and the third opening/closing valve [16b] are controlled so as to be closed** (paragraph 0017, 0020, 0023, and 0027; wherein as first opening/closing valve [15] is closed, second and third opening/closing valves [16a, 16b] would be closed as the upstream pressure would not be high enough to push open the check valves [16a, 16b] because the pump air supply is disconnected by closing the first opening/closing valve [15]).

8. As to claim 8, the modified Hirooka '263 discloses **the secondary air supply apparatus according to claim 7, wherein the failure determining device [5] determines that failure has occurred in the secondary air supply apparatus [1] when an increase in the pressure is not detected by the pressure detector [14]** (paragraphs 0020 and 0027).

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9. As to claim 9, the modified Hirooka '263 discloses **the secondary air supply apparatus according to claim 5, wherein the failure determining device [5] determines whether failure has occurred in at least one of the pressure detector [14] and the air pump [13] (paragraph 0020).**

10. As to claim 11, the apparatus of claim 5 would inherently perform the method of claim 11.

### ***Allowable Subject Matter***

11. **Claims 1-4 and 10** are allowed.

12. The following is a statement of reasons for the indication of allowable subject matter: As to claims 1 and 10, providing the claimed device and detecting that failure in the secondary air supply apparatus has occurred based on a result of detection that is performed by the pressure detector while the first opening/closing valve is opened and the second and third opening/closing valves are closed, and the air pump is stopped is new and novel over the prior art.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AUDREY KLASTERKA whose telephone number is (571) 270-5286. The examiner can normally be reached on Monday - Thursday, 7:30 am - 5:00 pm.



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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Thomas E. Denion/  
Supervisory Patent Examiner, Art Unit 3748

/A. K./  
Examiner, Art Unit 3748